

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

**REMARKS**

Claims 1-10 are pending in the present application. Claims 3 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if properly rewritten into independent form (see paragraph 3 of the Office Action).

It is respectfully requested that the present Reply be entered into the Official File. The present Reply is believed to be in proper form for placing the application in condition for allowance.

In the alternative, if the Examiner continues with the rejections of the present application, it is respectfully requested that the present Reply be entered for purposes of an Appeal. The Reply reduces the issues on appeal by reducing the number of issues on appeal (*i.e.*, the presentation of the new chart merely summarizes Applicant's comments as presented in previous replies and no new issues are being raised).

In view of the following remarks, Applicant respectfully requests that the Examiner withdraw all rejections and allow the currently pending claims.

**Issues Under 35 U.S.C. § 103(a)**

Claims 1-2, 4-8 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Franchini in view of Baxter and Cunha or Renoe

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

and Bader, Laughlin, Li, Rodriguez or Saxberg. Applicant respectfully traverses.

**The Present Invention**

The aim of the present invention is to provide an automated method for the collection of data in electronic form for a three-dimensional diagram containing a dependent physical and/or chemical property of a liquid as a function of temperature and a component concentration as independent variables. Applicant submits the following with regard to the present invention and the disclosure of each cited references (and combinations thereof).

**Summary of the Previously Argued Distinctions Over the Cited Combinations of References**

Below is a chart summarizing how each and every one of the cited references is deficient in disclosing all claimed features. Further, as can be seen from this chart, Applicant submits that any cited combination of these references is improper and would still not disclose all features as instantly claimed. Thus, reconsideration and withdrawal of all rejections are respectfully requested.

Appl. No. 09/381,828

Art Unit 1743

March 3, 2004

Reply to Office Action of December 3, 2003

Characteristics of the Invention As CLAIMED		COMPARATIVE CHART						
No.	Feature	CLAIM 1 of Appl. No. 09/381,828	Franchini	Laughlin	Bader	Cunha	Baxter, Rodriguez, Li, or Saxberg	Renoe
1	Automated	Yes	No	No	No	Yes	No	Yes
2	Numerical measurement of property as a function of concentration and temperature	Yes	Yes	No	No*	No	No	No
3	Concentration is changed according to computerized control program and	Yes	No	No	No	No	No	Yes
4	calculated from the program by a computer	Yes	No	No	No	No	No	Yes
5	Temperature is changed by a temperature control program and	Yes	No	No	No	No	No	No
6	temperature is calculated from the program or by measurements	Yes	No	No	No	No	No	No
7	Concentration is changed by addition directly into the measuring cell according to the control program for concentration	Yes	No	No	No**	No***.****	No	No
8	Measurements of the dependent property within the temperature range for each concentration level	Yes	Yes	No	No	No	No	No
9	Values of the property are combined with the independent variables by the computer	Yes	No	No	No	No	No	No
10	and the measuring points in the computer are coordinated and visualized in a 3-dimensional diagram	Yes	No	No	No	No	No	No
11	Determination of concentration from the control program	Yes	No	No	No	No	No	Yes

\* no numerical measurements

\*\* no change by control program

\*\*\* only additions to the sample for each determination of concentration

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

Distinctions Over All Cited Combinations of References

Applicant respectfully submits that each and every reference has been improperly combined with one another. Further, all requirements for a *prima facie* case of obviousness have not been satisfied.

*(A) Lack of Disclosure of All Features As Instantly Claimed*

As can be seen from the chart, not even the cited combinations of references disclose all features as instantly claimed. For example, no reference discloses the claim language labeled as 5 (temperature is changed by a temperature control program), 6, 7, 9 or 10. Thus, not even the initial requirement for a *prima facie* case of obviousness has been satisfied (*i.e.*, disclosure of all claimed features). See *In re Vaeck*, 947 F.2d, 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991). Thus, Applicant respectfully submits that all rejections have been overcome.

*(B) Lack of the Requisite Motivation and Reasonable Expectation of Success*

Applicant herein discusses (and repeats) the actual disclosure of the cited references with regard to the present invention, including how each of the references solves its problems. Overall, Applicant submits

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

that the references have been improperly combined and that the requisite motivation and reasonable expectation of success are lacking.

Applicant respectfully further submits that none of the cited reference describes an automated device having the ability to make all the necessary measurements and to create a three-dimensional diagram, where at least one dependent physical or chemical property is measured and illustrated as a function of the two independent variables, temperature and concentration. The need for such a device is obvious, but no one has been able to find a solution on this problem for decades. This fact alone is strong evidence that the present invention has both novelty and inventive merit. Each reference is discussed below.

a. Franchini

Franchini is the primary reference. Franchini fails to disclose steps 2, 3, 4 5 and 6 above.

In the Office Action, Franchini is the only reference that is concerned with measuring a physical or chemical property as a function of both temperature and concentration. Specifically, on page 1697, last paragraph, Franchini makes the following statement:

The large amount of experimental data obtained led us to make another attempt at an empirical approach to the problem of the dependence of the dissociation constant both on the temperature and on the composition of the binary solvent system.

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

From this statement, however, it is evident that the cited Franchini reference fails to disclose or recognize any solution to the problem of handling the large amount of data in connection with the creation of a three-dimensional diagram (*i.e.*, " ... led us to make another attempt at an empirical approach ... "). Therefore, Franchini makes an empirical approach to clarify the dependence of the dissociation constant of weak electrolytes on the temperature and on binary ethane-1,2-diol and 2-methoxyethanol solvent systems. In the disclosure of this reference, conductance data from an earlier work were integrated by those obtained from three new mixtures. These new mixtures were prepared with pure manual methods (see p. 1698, 3<sup>rd</sup> paragraph). First, the solvents mixtures were prepared by weight. The solutions of picric acid at different concentrations were obtained by successive dilution of stock solutions. The concentrations in volume were then calculated from the weight concentrations and the densities. The conductance readings were recorded when they became invariant with time, which took about 30 minutes.

Still, the process disclosed in the cited Franchini reference is completely manual. Thus the steps 2, 3 (concentration is changed according to a computerized control program), 4, 5 and 6 of claim 1 of the present are not disclosed or recognized by the cited primary reference of Franchini.

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

It should also be observed that in the present invention the changes of the component concentrations are made by adding another liquid with a different concentration of the component **to the previous liquid or a part of the previous liquid in the measuring cell.** But in Franchini, the different samples were individually prepared from stock solutions. This is in contrast to the present invention when in the present process there is only one sample existing at each point of time, namely the sample in the measuring cell, and, after the measuring of the dependent variable or variables, the succeeding sample **is directly prepared in the measuring cell.** These are significant and great differences in principle between Franchini and the present invention with regard to preparing samples.

Applicant also submits that any cited reference used for a rejection under 35 U.S.C. § 103(a) must be considered in its entirety, i.e., as a whole, including those portions that would lead away from a claimed invention. See *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). In other words, the cited Franchini reference must be read in its entirety, including any fundamental difference when it comes to the preparation of samples.

As can be seen, the present invention is not only a simple "translation" of a manual method into an automatic process. One of

ordinary skill in the art would recognize a multitude of factors for such a proposition. The Office Action has not accounted for such problems and factors involved in automating such methods (i.e., of Franchini). Thus, Applicant respectfully submits that one of ordinary skill in the art would not even refer to the Franchini reference in the first place based on such principle differences. Reconsideration and withdrawal of these rejections based on Franchini are respectfully requested.

b. Reno

Reno fails to disclose steps 2, 5 (temperature is changed by a temperature control program), 6, 7, 8, 9 and 10 (see the chart above). The skilled artisan would also not refer to the Reno reference in the first place.

Applicant submits that there is no clear and particular guidance in Franchini for one of ordinary skill in the art to refer to Reno. Though the Office Action refers to how it would be obvious to one of ordinary skill in the art to automate the Franchini method through use of an automated liquid handling system as disclosed in Reno (see the Office Action at page 6, lines 1-4 from the bottom), Applicant respectfully disagrees with this assertion. First, such a conclusion does not take into account the inconsistencies between the cited

references. Second, a consideration of such inconsistencies reveals that the requisite motivation and reasonable expectation of success are lacking here.

The cited secondary reference of Renoe relates to an automated system for preparing solutions. Specifically, Figure 1 on page 662 shows a system that produces a large number of individual samples, which have to be handled later. In comparison, the present invention utilizes one sample, wherein new samples are directly produced in the measuring cell by the assistance of a control program for the change of concentration. Thus, Applicant submits that the disclosure in Renoe relates to a method for handling sampling that is completely different than method as instantly claimed (see the features of claim 1). Thus, Renoe is inconsistent with the present invention.

Accordingly, Applicant respectfully submits, based on the disclosure of Renoe and Franchini, one of ordinary skill in the art would not be motivated or reasonably expect to be successful in combining these references with any of the other cited references since both have features that are inconsistent with the claimed features. Some other method by combining these references would be generated with such a proposition.

Renoe further fails to disclose many features of the present invention (such as steps 2 (numerical measurement of property as a

function of concentration and temperature), 5, 6, 7, 8, 9 and 10 listed in the chart above). Given the deficiencies of the Franchini reference already, one of ordinary skill in the art would not be motivated or reasonably expect to be successful in combining these references with any of the other cited references since the present invention would still not be achieved.

Further, the disclosure in Renoe has no effect on the patentability of the present invention as claimed in claim 7. Even assuming *arguendo* that it would be possible for a person skilled in the art to replace the manual handling of the samples of the Franchini reference with the automated sampling system disclosed in Renoe, the present invention would still not be achieved. In other words, the Renoe reference does not even account for the deficiencies of the other primary reference of Franchini or any other cited reference, and both of these references fail to disclose all features as instantly claimed (*i.e.*, see steps 5, 6, 7 and 9 above, wherein both fail to disclose such steps of instantly pending claim 1). Neither Franchini nor Renoe disclose the other characteristic parts necessary in the automated method of claim 1 or in the device of claim 7 in the present invention. There is no motivation or reasonable expectation of success for the skilled artisan to combine these references, and Applicant submits that any rejection based on these references is improper.

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

c. Cunha

Cunha fails to disclose many features as instantly claimed, such as steps 2, 3, etc. (see the chart above).

The cited Cunha reference relates to gravimetric burettes and their supplies **with suitable solutions for titration**. In the burette, quantitative analyses of components are performed by titration. However, no titration or no other quantitative analysis is performed in the measuring cell in the present invention. Also in the present invention, the concentration of the component in the measuring cell as well as the temperature are amended in a predetermined way, while at least one dependent physical or chemical property is measured.

Thus, Applicant submits that Cunha does not disclose almost all features of instantly pending claim 1, nor does Cunha describe a measuring cell having the equipment as instantly recited in claim 7. In fact, Cunha does not account for the deficiencies of any of the other cited references, making the instant rejections improper (no disclosure of all claimed features to establish a *prima facie* case of obviousness). Further, the cited Cunha reference does not disclose how to make a different solution with a known concentration and how to measure a dependent physical or chemical property as a function of concentration and temperature (see the chart above summarizing the features of instantly pending claim 1). Due to its titration in the measuring cell,

it will also be necessary to completely change the fluid in the measuring cell between each titration. This is another fundamental difference between this reference and the present invention. Thus, Applicant respectfully submits that the disclosure of Cunha does not, whether taken alone or in combination with Franchini (whether proper or not), pertain or disclose the features of the present invention (as defined in claim 1 or claim 7). Reconsideration and withdrawal of all rejections citing Cunha are respectfully requested.

The Examiner has also cited some references dealing with the problems related to Standard Addition Methods, SAMs, which are a methodology to make **quantitative analyses**. Thus, the references Saxberg, Li, Bader, Baxter, and Rodriguez all make theoretical studies of different approaches of SAM or investigations of the validity of specific SAMs. Said references are further discussed below. Still, Applicant submits that none of the other references describes a process as defined in claim 1, or a device as defined in claim 7. Put differently, there is no disclosure in any of these references of steps 1, 2, 3 and 4 as instantly recited in claim 1. Since Franchini fails to disclose the mentioned steps as shown in the chart above, Applicant respectfully submits that it is not possible to combine the primary Franchini reference with any of the other five cited references so as to obtain a method or device as instantly claimed. And as mentioned,

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

neither Renoe or Cunha account for the deficiencies of Franchini or any other reference. Overall, Applicant respectfully submits that the 5 references or Franchini et al. do not describe the methods as instantly claimed, nor do such asserted combinations thereof disclose a device or a measuring cell having the equipment as recited in claim 7 (see a), ii) of this claim).

d. Li

Li fails to disclose all features of claim 1 of the present invention. In fact, Applicant respectfully submits that this reference should not have been cited in the first place based on such a deficient disclosure.

The cited Li reference is concerned with standard additions and subtractions methods **for the determination of an unknown concentration** of a known component in a solution. This disclosure itself in Li makes any combination with this reference improper in efforts to achieve the present invention.

In Li's method, a standard solution is added to one sample and a blank solution with an equal volume of solution of equal ionic strength to another sample. The volumes of the two solutions are the same (see page 1607, left column, last paragraph). When the standard solution or blank solution is added, the ionic strength and concentration are

changed. The activity coefficients of the ions are the same because of the same variation of the ionic strength in the two instances (also at page 1607, left column, last paragraph). Given this disclosure, Li fails to disclose any and all features as instantly claimed.

According to Li, this method gives greater accuracy than the methods used at present. However, one of ordinary skill in the art would readily understand that Li does not describe any of the characteristics of the present invention. Thus, the skilled artisan would not be motivated or reasonably expect to be successful in combining the Li reference with Franchini in order to obtain a method in accordance with the invention. Li does not even account for the major deficiencies of Franchini or any of the other cited references (*i.e.*, Renoe). Therefore, Li taken alone or combined with Franchini does not even disclose or recognize the present invention as instantly claimed. Withdrawal of any rejection citing Li is respectfully requested.

e. Rodriguez

Rodriguez fails to disclose each and every feature as instantly claimed (see the chart above). Thus, Applicant respectfully submits that this reference should not have been cited in the first place based on such a deficient disclosure.

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

Rodriguez relates to a statistical procedure to validate **analytical** methodology by standard addition methodology (see the Abstract on page 471). Data from three calibration experiments with standard solution, standard additions, and portion of samples are used (see the section titled "Experimental" on page 472). This disclosed methodology is not applicable to the present invention. In the present invention there is no need for the calibrations of analytical measurements, since analytical measurements is not performed. Thus, Applicant respectfully submits that the Rodriguez reference is improperly cited and applied. Further, one of ordinary skill in the art would not even refer to the Rodriguez reference since Rodriguez is directed to analytical measurements (which is not a part of the present invention). To support Applicant's position, the following is submitted.

There are three possible sources of motivation to combine references: the nature of the problem to be solved, the teaching of the prior art, and the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). Here, Rodriguez is not directed to the same teaching or nature of the problem to be solved as the other cited references nor the present invention. Further, the skilled artisan would not even refer to this reference directed to analytical methodology (see Abstract). Thus, Applicant respectfully submits that the requisite motivation is lacking

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

with regard to the cited Renoe reference. Reconsideration and withdrawal of all rejections based on this reference are respectfully requested.

f. Saxberg

Saxberg fails to disclose each and every feature as instantly claimed (see the chart above). Thus, Applicant respectfully submits that this reference should not have been cited in the first place based on such a deficient disclosure.

Saxberg relates to a generalized standard addition method, whereby this reference discloses the mathematics for simultaneous multidimensional analyses. However, Saxberg is not in any aspect related to the aim of the present invention. For a person skilled in the art, it is not obvious as to how and why this reference is to be combined with Franchini or referred to in the first place. Even if Franchini and Saxberg are combined with any of the other cited references, such a combination cannot result in a method or device as defined in claim 1 and claim 7 of the present invention. Saxberg does not account for the deficiencies of Franchini or any of the other cited references. Thus, Applicant respectfully submits that any rejection citing Saxberg is improper, and request that any such rejection be withdrawn.

g. Baxter

Similarly to Saxberg or Rodriguez, the cited Baxter reference fails to disclose each and every feature as instantly claimed (see the chart above). Thus, Applicant respectfully submits that this reference should not have been cited in the first place based on such a deficient disclosure.

Baxter is directed to a simplified generalized standard method for a direct analysis of solid samples by graphite furnace atomic spectrometric techniques. By varying both a **solid** sample mass and the amount of an analyte, the observed response may be described in a three-dimensional diagram as a function of the solid sample mass and of the analyte. With regard to this disclosure, Applicant respectfully submits that one skilled in the art would not combine or even refer to this reference, upon a reading of Franchini or any of the other cited references, in order to achieve the present invention. Baxter does not even account for all of the deficiencies of any of the references, including Franchini. Further, a combination of the primary reference of Franchini with Baxter would result in a method and a device that is not instantly claimed. Accordingly, reconsideration and withdrawal of any rejection based on Baxter are respectfully requested.

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

h. Bader

The deficiencies of the cited Bader reference are shown in the above chart (which are significant).

Bader is concerned with **manual** analyses of an **unknown amount** of a known component with SAMs. Bader is completely silent with regard to creating three-dimensional diagram showing a dependent physical or chemical property as a function of the independent variables concentration and temperature. Further, the method disclosed in Case 5 presupposes that the analysis response is proportional to concentration and the responses is plotted in a diagram, from which the unknown concentration is determined. In case 5, the method can be performed either on the same solution, to which additions are made, or on a series of solutions. The method performed on the same solution is said to save time, since the changing of samples are avoided. Thus, the saving in time is related to other SAMs, where the measurements are performed on a series of solutions. However, only one determination of an unknown concentration is obtained in this way, which shows that SAMs generally are rather time consuming, in comparison with, for example, an analysis method wherein the response of a solution with the unknown content is directly compared with previous prepared response curve. In the latter case, all additions of a solution with a known concentration to the

solution with the unknown concentration can be avoided and only one measurement is needed.

There is no teaching or recognition in Bader that the methods described in any manner can be utilized in the creation of a three-dimensional diagram described in the present invention. Thus, Applicant respectfully submits that Bader should not have been cited in the first place.

Further, the cited Bader reference is completely silent with regard to creating three-dimensional diagrams showing a dependent physical or chemical property as a function of the independent variables concentration and temperature. Thus, this reference does not account for the deficiencies of the other references, including the primary reference of Franchini. Accordingly, Applicant respectfully submits that it is not obvious to a person skilled in the art how to perform an automated method for the creation of a three-dimensional diagram, wherein a physical or chemical property is measured as a dependent variable as a function of temperature and concentration since the disclosure of Bader relates to **quantitative analysis of an unknown concentration**.

Furthermore, one of ordinary skill in the art would not be motivated or reasonably expect to be successful in combining Franchini with Bader, since these references have different objectives and

different techniques. Such techniques cannot even be combined. The Office Action (at page 6, lines 19-20) refers to the "matrix effects" and "greater accuracy" based on the method of Bader. However, Bader (and Franchini) is still deficient in its disclosure. Furthermore, a true combination of Franchini and Bader cannot even theoretically result in an automatic method, which is the objective of the present invention, since both references relate to **manual** methods. These inconsistencies have not been accounted for in the Office Action. Thus, Applicant respectfully requests withdrawal of all rejections citing the Bader reference.

i. Laughlin

Laughlin fails to disclose all ten steps of instantly pending claim 1. Thus, Laughlin does not account for the deficiencies of any of the other cited references and has been improperly cited and used.

Again, Laughlin describes a completely **manual** method to determine the solubility of a surfactant. According to Laughlin, a sample is placed in a tube equipped with a thermometer and the sample is rapidly heated or cooled and continuously stirred to ascertain whether a phase transition exists. If a phase transition is found the sample is heated or cooled past the transition using baths which are not more than 20-30°C above or below the transition. Then the temperature is allowed to

Art Unit 1743

March 3, 2004

Reply to Office Action of December 3, 2003

drift back towards room temperature and the sample is **visually** observed and the temperature where the separating phase first appears or last disappears is noted. This process is repeated until a reproducible value is obtained. An aliquot of water is then added to the sample in the tube and the procedure indicated above is repeated. At a concentration of about 15%, an aliquot of 1.5-2g of the composition is transferred to a new tube and the dilution is continued to cover the lower concentration. From the data, the phase transitions are connected to smooth curves to show the boundaries in a **two-dimensional diagram** (see Figure 2 in the article). Laughlin does not provide a numeric value for the cloudiness as a function of temperature and concentration.

The tedious manual method of finding a phase transition and to measure the temperature, at which the phase transmission occurs, disclosed by Laughlin is quite time-consuming. Each readings take about 15 minutes and the determination of the solubility boundaries takes 1 day. No numeric readings of the dependent property are made. Thus, there are not only an essential difference in the method of producing the data but also between the value of the information given in the two-dimension diagram by Laughlin and a three-dimensional diagram of the present invention (see the three dimensional diagram in Figure 2 of the present application, which diagram shows a "landscape" of the dependent property). Thus, one of ordinary skill in the art would not combine the

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

Laughlin reference with Franchini, or any of the other cited references, when Laughlin or Franchini do not disclose automated methods as instantly claimed. There is no "clear and particular" guidance in the cited references for one of ordinary skill in the art to achieve the present invention, especially considering the disclosed manual, time-consuming methods of the references. While a cited reference need not expressly teach that the disclosure contained therein should be combined with another, *see Motorola, Inc. v. Interdigital Tech. Corp.*, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997), the showing of combining references "must be clear and particular". *See In re Dembicza*k, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). As mentioned, there is no guidance here in Laughlin or Franchini to achieve the methods as presently claimed. Also, the access to this type of information is very valuable and it is evident that Laughlin did not know how to obtain all these data in a simple and rapid manner. Thus, the skilled artisan would understand the patentable distinctions of the present invention over the Laughlin method (whether combined with Franchini or not).

Further, it would not have been obvious to Franchini to use the tedious method of Laughlin, since the latter method does not provide any numeric values of the dependent parameter and a rather poor accuracy in the temperature readings, and any saving of time is, during these circumstances, of no interest. In addition, Franchini seems to have no

real advantage of using the dilution process of Laughlin, since the dilution does not affect the time for the sample **to reach the equilibrium**, which seems to be the main cause for the slow process in Franchini.

It is evident to one having ordinary skill in the art that both claim 1 and claim 7 of the present invention is patentable distinct from Franchini and/or Laughlin (whether combined or not). This is in addition to how Franchini does not disclose any of the process steps 2-6 in claim 1 and Laughlin does not disclose any one of the process steps in claim 1.

Thus, Laughlin does not account for the deficiencies of Franchini, and vice versa. Further, even though the Examiner is asserting that the Cunha, Li and Renoe references account for the deficient disclosure of Laughlin (*i.e.*, automation aspect of the rejected claims) (see the Office Action at paragraph 4, page 7), the Examiner has still not accounted for the deficient disclosure of Cunha, Li and Renoe themselves. Further, neither of the two references of Laughlin and Franchini discloses an automated method for the characterization of physical and/or chemical properties as function of temperature and a component concentration as independent variables as instantly claimed. The Office Action has not explained as to why the deficiencies are acceptable for forming a *prima facie* case of obviousness. Further, it

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

is not obvious or possible to combine Laughlin with Renoe, Cunha or anyone of the SAM references in order to obtain an automated method and an automated device in accordance with the present invention for the same reasons mentioned above in considering similar combinations with Franchini. Applicant respectfully requests withdrawal of all rejections and allowance of the pending claims.

Improper Combinations of the References

Supplemental to the previous remarks, including how all cited combinations of references are deficient in disclosing the present invention, Applicant provides the following additional remarks.

At the page 6, the last paragraph of the Office Action, the Examiner alleges that it would have been obvious at the time the invention was made to replace the successive dilution of Franchini with the successive addition of an analyte containing a solution of known concentration according to the teaching of Bader, Li, Rodriguez or Saxberg because of the reductions of interference due to the matrix effects and the greater accuracy through use of a standard method as taught by Bader, Li, Rodriguez and Saxberg. Applicant respectfully traverses such a conclusion.

It should be observed (and Applicant has previously submitted) that Franchini makes successive dilutions of a solution containing a **known**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

amount of a **known** compound and perform conductance readings at known concentrations and at known temperatures. A standard addition method (SAM) is a well-known quantitative method of analysis. In such a method, one successive addition of an analyte with a known concentration is added to a sample containing an **unknown** concentration of the analyte. An analytical response is measured before and after each addition. By guidance of the responses it is possible to calculate the **unknown** concentration. The SAM may results in improved accuracy in the termination of the unknown concentration. However, any improved accuracy is not a valid reason to combine Franchini with any of the cited SAM references when Franchini analyses of compounds or their contents are **not performed**. In other words, the problem solved with SAM is not a problem, when creating 3-dimensional diagram showing a physical and chemical properties as a function of concentration and temperature. Thus, Applicant respectfully submits that the cited references have been improperly combined.

Further, at the middle of page 7 of the Office Action (see paragraph 4), the Examiner asserts that the Laughlin reference does not need to teach the automation aspect, since Cunha, Li, and Renoe show the advantages of using an automated control in the addition of liquids in an **analysis** method. Applicant respectfully disagrees with such a proposition.

As mentioned, each of the cited references is deficient in some respect and cannot account for the deficiencies of each other. Even if, for example, Laughlin was combined with Renoe (samples with different known concentrations), such a combination still would not disclose all instantly claimed features of the present invention. Further, it should be observed that Laughlin is not even directed to three-dimensional diagrams, placing this reference in a nonanalogous art from the present invention.

In regard to the Examiner's assertions that the secondary references (*i.e.*, those directed to standard additions methods) are in an analogous art to Franchini because "they are forming a series of samples for analysis" (see the Office Action at page 7, lines 10-11 from the bottom), Applicant respectfully traverses this conclusion. Such a rationale is merely a generalization that many different fields of endeavors (arts) can be included. In other words, the Examiner's rationale would mean that any reference directed to "forming a series of samples for analysis" could be included, even though a reference would be directed to an art that is not analogous to Franchini, such as a solution handling system (such as the Renoе reference, which describes a system that produces a large number of individual samples that have to be handled later) or gravimetric burettes and their supplies with suitable solutions for titration (Cunha). Thus, Applicant submits and

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

maintains the position that many of these references have been improperly cited and are not in an analogous field as the primary Franchini reference. Further, none of the cited secondary references account for the deficient disclosure of the primary references. Accordingly, reconsideration and withdrawal of all rejections are respectfully requested.

Further, in the same paragraph at the bottom of the page 7 of the Office Action, the Examiner declares that the judgment of obviousness is "in a sense necessarily a reconstruction based on hindsight reasoning". Applicant respectfully disagrees with this conclusion. Applicant is aware that some hindsight is permissible. However, Applicant is asserting that substantial hindsight reconstruction has been applied against the present application, and not just some acceptable amount thereof.

The question here is if the skilled artisan having no knowledge of the actual invention **would have found it obvious** to combine the cited references in such a manner to achieve the present invention. Applicant submits that many inventions are, after their presentation, easy to understand, including any benefits or advantages thereof. Therefore, it is normally easy to search in certain literature for pieces of information and to put them together, even in a manner not suggested. It is also easy to overlook under which circumstances the pieces of

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

information were disclosed. Applicant respectfully submits that this is the situation here. Here, Applicant submits that it is not acceptable to show that certain pieces of information **could** have been combined by a person skilled in the art given the disclosure of each of the cited references of Franchini, Baxter, Cunha, Renoe, Bader, Laughlin, Li, Rodriguez and Saxberg. This is not the standard under 35 U.S.C. § 103(a). Thus, Applicant respectfully submits that all of these rejections have been overcome due to the amount of hindsight reasoning that has been applied.

Also, the Office Action at page 8 and the upper part of page 9 are full of hindsight reasoning where arguments are phrased and the references subjectively interpreted in order to match on certain characteristics of the claims. For example, in the first three sentences on page 9, the Examiner isolates certain pieces of information from the actual disclosure of Bader. As another example, there appears to be no recognition of the fact that the Bader reference relates to a **manual** method of determining the concentration of a **known component** in a sample by making a **plurality of additions** of a solution containing a known concentration to said sample and a **plurality of measurements** after each addition for determining the unknown concentration in the original sample. The disclosure of Bader is not even concerned with the automatic creations of three-dimensional diagram with concentration and

temperature as independent variables. As another instance, there appears to be no recognition that the advantage in time refers **only** to other SAMs, and that measurements of an unknown concentration can more easily be made with just one measurement without any plurality of additions of a solution with a known concentrate and that no measurements of any concentration is performed in the present information. Thus, Applicant respectfully submits that only parts of the cited references have been applied, wherein other essential parts and objectives of these references (i.e., the manual method of Bader) are not properly considered with the present invention.

Thus, Applicant respectfully submits that substantial and an impermissible level of hindsight reconstruction has been applied. Still, even if assuming that all of the cited references could be combined (Franchini, etc.), there is still no disclosure of all of the necessary characteristics (see the features as instantly claimed). The present invention would still not be achieved. Thus, reconsideration and withdrawal of all rejections are respectfully requested.

Comparison to the Closest Prior Art Example

The Office Action appears to believe that the primary reference of Franchini is the closest prior art (Applicant requests clarification if this is not the case). Franchini discloses a three-dimensional diagram

of the type referred to in the present invention. The cited Renoe reference appears to be close, which relates to an automated method of producing the samples with predetermined concentration of a known component.

Still, a hypothetical combination of Franchini and Renoe would still not result in a method as instantly claimed. First, such an asserted prior art combination will have to handle a large number of samples (in contrast to the present invention having only one sample), which is prepared directly in the measuring cell under the creation of the three-dimensional diagram. Thus, in contrast to Franchini and Renoe, the present invention results in a simpler device and faster measurements. Furthermore, the combined method would only be partially automated and a large amount of data still has to be handled manually. This is in contrast with the present invention. Thus, reconsideration and withdrawal of the present rejections are respectfully requested.

Summary

As earlier submitted, the USPTO has failed to establish a *prima facie* case of obviousness. For instance, there is no reference that relates to the objectives of the present invention and even develops an automated method to produce a three-dimensional diagram. The cited primary reference of Franchini discloses that because of the large

**Appl. No. 09/381,828**

**Art Unit 1743**

**March 3, 2004**

**Reply to Office Action of December 3, 2003**

amount of data involved, they had to make an empirical approach to the problem. This indicates that it was not obvious to the Franchini et al. team as to how the problem with large amounts of data could be handled. This is an apparent inconsistency with the present invention. Nor has any one of the other cited references (i.e., Renoe; Cunha; etc.) made any suggestions how to solve the objective of the present invention. Applicant further notes that the benefits of the invention are evident, especially in light of how most of the references have been published in the seventies or eighties. It is apparent to one of ordinary skill in the art that no one else has understood how to achieve the present invention, despite the disclosure of all of the cited references. Furthermore, any such combination would still not disclose all features as instantly claimed (please refer to the chart above). Thus, not even the initial requirement of disclosure of all claimed features for a *prima facie* case of obviousness has been satisfied. Reconsideration and withdrawal of all rejections are respectfully requested.

### **Conclusion**

A full and complete response has been made to all issues as cited in the Office Action. Also, Applicant respectfully submits that the supplied chart is evidence that all rejections have been overcome.

Appl. No. 09/381,828

Art Unit 1743

March 3, 2004

Reply to Office Action of December 3, 2003

Applicant has taken substantial steps in efforts to advance prosecution of the present application. Thus, Applicant respectfully requests that a timely Notice of Allowance issue for the present case.

Should there be any outstanding matters that need to be resolved in the present application, **or in an effort to advance prosecution**, the Examiner is respectfully requested to contact Eugene T. Perez (Reg. No. 48,501) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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